Comments on NJDEP White Paper: SCS004C - Fluid Catalytic Cracking Unit (FCCU) Fluidized Coking Unit (FCU) in a Petroleum Refinery

Control Measure Summary from NJDEP White Paper	Emissions (tons/year) in NJ (from NJDEP White Paper)		Comments on NJDEP White Paper
2002 existing measure: Wet Gas Scrubber	**VOC** in 2002	134	NJDEP should reference the source(s) for the emission data so that comments can be provided. As presented, there is insufficient background information to assess the accuracy of the emission estimates.
	SO2 in 2002	3837	
	NOx in 2002	1675	
Candidate Measure 1: Selective Catalytic Reduction (SCR) for NOx control. **Emission Reductions:** 80 to 95% of NOx. **Control Cost:** < $2500 per ton of NOx removed **Timing of Implementation**: By end of 2009. **Implementation Area**: OTC	**NOx** 2002 Base: Reduction: 2009 Remaining:	 1675 - 520 1155	NJDEP provides insufficient information to evaluate the accuracy of the documented NOx reduction of 520 tons/yr. NJDEP should provide the basis for the reduction so that detailed comments can be provided. For example, NJDEP should, at a minimum, provide an analysis that identifies the existing source inventory, and associated emission, control measures currently utilized, and reductions that will be achieved through reductions achieved through consent decrees. In addition, NJDEP should provide cost calculations and references for the basis of the cost calculation. The basis must include the incremental cost of implementing the control technology considering the technologies currently utilized. Later in the White Paper, NJDEP states that LoTOx is a new technology for NOx emission reduction. As such, more information should be provided regarding this technology. Also, there are no sources of technical information cited for this White Paper, making it difficult to provide contructive comments regarding the technical and economic feasibility of the control measures proposed.
Candidate Measure 2: LoTOx process for NOx control. **Emission Reductions**: 80 to 95% NOx **Control Cost:** $1700 to 2000 per ton of NOx removed. **Timing of Implementation:** By end of 2009 **Implementation Area:** OTC			
Candidate Measure 3: Latest DeSOx Additives in Regenerator and Improved efficiency of existing Wet Gas Scrubber for SOx control Emission Reductions: Overall 97 to 99.95% **Control Cost:** Overall <$1000 per ton of SOx removed. **Timing of Implementation:** By end of 2009 **Implementation Area:** OTC	**SO2** 2002 Base: Reduction: 2009 Remaining:	 3837 -2837 1000	The SO2 reduction identified will likely be achieved through implementation of existing consent decrees. Nevertheless, NJDEP provides insufficient information to evaluate the accuracy of the documented SO2 reduction of 2837 tons/yr. NJDEP should provide the basis for the reduction so that detailed comments can be provided.

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Candidate Measure 4: Optimum Temperature and oxygen content in Regenerator and Feed Quality Control for VOC and CO reduction at no extra cost.	**VOC** 2002 Base: Reduction: 2009 Remaining:	 134 - 20 114	NJDEP provides insufficient information to evaluate the accuracy of the documented VOC reduction of 20 tons/yr. NJDEP should provide the basis for the reduction so that detailed comments can be provided. Additionally, NJDEP should further detail how feed quality control can be implemented with no extra cost to facilities.
Policy Recommendation of State/Workgroup Lead: Selective Catalytic Reduction (SCR) or LoTOx is recommended for NOx control. DeSOx catalyst addition and scrubber efficiency improvement are recommended for SOx control. **Brief Rationale for Recommended Strategy:** According to the current EPA Consent Decrees, facilities must achieve annual emission rates of 20 ppmvd NOx and 20 ppmvd SOx by the end of 2009. SCR has been successfully applied to refinery furnaces and FCCUs, and have high NOx control efficiency at a reasonable cost. LoTOx is a relatively new technology to be installed in FCCUs at two facilities in the US. The technology has high control efficiency for a reasonable cost. For SOx control, improvement in SOx reduction efficiency can be achieved by adding DeSOx additives in the regenerator and improving the efficiency of the scrubber by special chemical addition.			NJDEP's statement, "facilities must achieve annual emission rates of 20 ppmvd NOx and 20 ppmvd SOx by the end of 2009" is not accurate. The emission rates are incorrect and/or misleading. The consent decrees contain various emission limits with short-term and long-term averaging periods and various options for demonstrating compliance. Before any regulatory action, the NJDEP needs to provide detailed information on baseline emissions and control costs, and develop a method to adequately address site-specific considerations, including EPA enforcement actions and/or 114 consent decrees. This is especially important for control measures such as LoTOx, which NJDEP describes as a new technology that is yet to be installed, and is only scheduled to be installed at two facilities in the U.S.